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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,423	10/15/2003	Akira Chinda	035532-0136	3918
22428	7590	09/21/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			CHAMBLISS, ALONZO	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,423

Applicant(s)

CHINDA ET AL.

Examiner

Alonzo Chambliss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 1-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/021,257.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/15/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The pre-amendment filed on 10/15/03 has been fully considered and made of record in the instant application.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/021,257, filed on 12/19/01.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 10/15/03 was filed before the mailing date of the non-final rejection on 9/16/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

4. The formal drawings filed on 10/15/03 have been approved by the examiner.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: " METHOD OF FABRICATING A WIRING BOARD UTILIZING A CONDUCTIVE MEMBER HAVING A REDUCED THICKNESS ".

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 37-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. In claims 37 and 38, the phrase " forming a conductive member having a thickness equal to or thinner than that of said insulating substrate " is vague and indefinite since it is not clear from the claim where the conductive member is located.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 37, insofar as definite, is rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Admitted Prior Art.

With respect to Claim 37, the Admitted Prior Art teaches defining an opening 102 at a predetermined position of a film-like insulating substrate 1, wherein a conductive thin film 18 is formed on a principal plane of the insulating substrate 1. Etching the conductive thin film 18 to form an electric wiring provided with a connection terminal 2A covering the opening 102. A conductive member 15 has a portion (i.e. the planar

portion that is in contact with the connection terminal) that is formed having a thickness thinner than that of the insulating substrate 1 (see specification, pages 1-5; Figs. 4A-4C).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 38-44, insofar as definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art as applied to claim 37 above, and further in view of Uzoh (U.S. 6,180,505).

With respect to Claims 38-42, the Admitted Prior Art fails to disclose forming sequentially a thin film layer made of nickel (Ni) by electroplating or electroless and a thin film layer made of gold (Au) on the surfaces of the electric wiring and the

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conductive member. However, Uzoh discloses forming sequentially a thin film layer made of nickel (Ni) 25 by electroplating or electroless and a thin film layer made of gold (Au) 27 on the surfaces of the electric wiring and the conductive member 10 (see col. 2 lines 3-5, col. 3 lines 62-67, col. 4 lines 39-41, and col. 6 lines 32-42). Thus, the Admitted Prior Art and Uzoh have substantially the same environment of a substrate with an opening plated with a conductive material. Therefore, it would have been obvious to incorporate the conductive member made of Ni and Au film layers with the process of the Admitted Prior Art, since the conductive member structure would prevent destructive interaction between the nickel and gold as taught by Uzoh.

With respect to Claims 43 and 44, Uzoh discloses a step for forming the conductive member is effected by such a manner that the inside of the opening is filled with a conductive paste 10 of copper and solidified (see col. 3 lines 62-67 and col. 4 lines 1-60).

13. Claims 45-49, insofar as definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art and Uzoh (U.S. 6,180,505) as applied to claims 37, 38, 41, and 43 above, and further in view of Ishikawa (JP 2000-4069).

With respect to Claims 45-49, the Admitted Prior Art-Uzoh both fail to disclose a step for forming the conductive member is effected by such a manner that the conductive member has a thinner thickness at the central portion of the opening than that of a vicinity of a side wall of the opening. However, Ishikawa discloses a step for forming the conductive member 3 is effected by such a manner that the conductive member has a thinner thickness at the central portion of the opening 5 than that of a

vicinity of a side wall of the opening of the substrate 1, 7 (see English translation, Figs. 1a-1d). Thus, the Admitted Prior-Uzoh and Ishikawa have substantially the same environment of substrate with an opening fill with a conductive material. Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the conductive member having a thinner thickness at the central portion of the opening with the process of the Admitted Prior Art-Uzoh, since the conductive member would improve the adhesion between the conductive member and external electronic device as taught by Ishikawa.

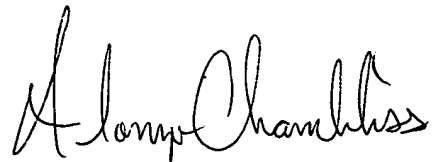
The prior art made of record and not relied upon is cited primarily to show the process of the instant invention.

Conclusion

14. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (571) 272-1927.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956.

AC/September 16, 2004

A handwritten signature in black ink, reading "Alonzo Chambliss". The signature is written in a cursive style with a large, stylized initial "A".

Alonzo Chambliss
Primary Patent Examiner
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